

B76
2001
PA/Bio

GENE CLONING AND DNA ANALYSIS

An Introduction

T.A. BROWN

Department of Biomolecular Sciences
UMIST
P.O. Box 88
Manchester
M60 1QD
UK

Fourth Edition

Best Available Copy

b

Blackwell
Science

© 2001 by
Blackwell Science Ltd
Editorial Offices:
Osney Mead, Oxford OX2 0EL
25 John Street, London WC1N 2BS
23 Ainslie Place, Edinburgh EH3 6AJ
350 Main Street, Malden
MA 02148 5018, USA
54 University Street, Carlton
Victoria 3053, Australia
10, rue Casimir Delavigne,
75006 Paris, France

Other Editorial Offices:

Blackwell Wissenschafts-Verlag GmbH
Kurfürstendamm 57
10707 Berlin, Germany

Blackwell Science KK
MG Kodenmacho Building
7-10 Kodenmacho Nihombashi
Chuo-ku, Tokyo 104, Japan

Iowa State University Press
A Blackwell Science Company
2121 S. State Avenue
Ames, Iowa 50014-8300, USA

First, second and third editions
published by Chapman & Hall 1986,
1990, 1995

Reprinted 1998 by
Stanley Thomas (Publishers) Ltd
Fourth edition published by Blackwell
Science Ltd 2001

Set in 10/13.5 pt Times
by Best-set Typesetter Ltd., Hong Kong
Printed and bound in Great Britain by
Ashford Colour Press Ltd, Gosport

The Blackwell Science logo is a
trade mark of Blackwell Science Ltd,
registered at the United Kingdom
Trade Marks Registry

The right of the Author to be
identified as the Author of this Work
has been asserted in accordance with
the Copyright, Designs and Patents
Act 1988.

All rights reserved. No part of
this publication may be reproduced,
stored in a retrieval system, or
transmitted, in any form or by any
means, electronic, mechanical,
photocopying, recording or otherwise,
except as permitted by the UK
Copyright, Designs and Patents Act
1988, without the prior permission
of the publisher.

A catalogue record for this title
is available from the British Library
ISBN 0-632-05901-X

Library of Congress
Cataloging-in-Publication Data

Brown, T.A. (Terence A.)
Gene cloning and DNA analysis /
Terry A. Brown. - 4th ed.
p. cm.

Prev. ed. published with title:
Gene cloning.

Includes bibliographical
references and index.

ISBN 0-632-05901-X (alk. paper)

1. Molecular cloning.
2. Nucleotide sequence. 3. DNA -
Analysis. I. Brown, T.A. (Terence
A.). Gene cloning. II. Title.

QH442.2 .B76 2001

572.8'633 - dc21

2001025352

DISTRIBUTORS

Marston Book Services Ltd
PO Box 269
Abingdon
Oxon OX14 4YN
(Orders: Tel: 01235 465500
Fax: 01235 465555)

USA

Blackwell Science, Inc.
Commerce Place
350 Main Street
Malden, MA 02148 5018
(Orders: Tel: 800 759 6102
781 388 8250
Fax: 781 388 8255)

Canada

Login Brothers Book Company
324 Saulteaux Crescent
Winnipeg, Manitoba R3J 3T2
(Orders: Tel: 204 837-3987
Fax: 204 837-3116)

Australia

Blackwell Science Pty Ltd
54 University Street
Carlton, Victoria 3053
(Orders: Tel: 03 9347 0300
Fax: 03 9347 5001)

For further information on
Blackwell Science, visit our website:
www.blackwell-science.com

(Continued.) (2) The initial product of cloning using embryonic stem cells: an animal made up of a mixture of cells with different genotypes.

Chromosome One of the DNA-protein structures that contains part of the nuclear genome of a eukaryote. Less accurately, the DNA molecule(s) that contains a prokaryotic genome.

Chromosome walking A technique that can be used to construct a clone contig by identifying overlapping fragments of cloned DNA.

Cleared lysate A cell extract that has been centrifuged to remove cell debris, subcellular particles and possibly chromosomal DNA.

Clone A population of identical cells, generally those containing identical recombinant DNA molecules.

Clone contig approach A genome sequencing strategy in which the molecules to be sequenced are broken into manageable segments, each a few hundred kilobases or a few megabases in length, which are sequenced individually.

Clone fingerprinting Any one of a variety of techniques that compares cloned DNA fragments in order to identify ones that overlap.

Codon bias The fact that not all codons are used equally frequently in the genes of a particular organism.

Combinatorial screening A technique that reduces the number of PCRs or other analyses that must be performed by combining samples in an ordered fashion, so that a sample giving a particular result can be identified even though that sample is not individually examined.

Compatibility The ability of two different types of plasmid to coexist in the same cell.

Competent A culture of bacteria that has been treated to enhance their ability to take up DNA molecules.

Complementary Two polynucleotides that can base pair to form a double-stranded molecule.

Complementary DNA (cDNA) cloning A cloning technique involving conversion of purified mRNA to DNA before insertion into a vector.

Conformation The spatial organization of a molecule. Linear and circular are two possible conformations of a polynucleotide.

Conjugation Physical contact between two bacteria, usually associated with transfer of DNA from one cell to the other.

Consensus sequence A nucleotide sequence used to describe a large number of related though non-identical sequences. Each position of the consensus sequence represents the nucleotide most often found at that position in the real sequences.

Contig A contiguous segment of DNA sequence obtained as part of a genome sequencing project.

Continuous culture The culture of microorganisms in liquid medium under controlled conditions, with additions to and removals from the medium over a lengthy period of time.

**This Page is Inserted by IFW Indexing and Scanning
Operations and is not part of the Official Record**

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- ☒ **BLACK BORDERS**
- ☒ **IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- ☐ **FADED TEXT OR DRAWING**
- ☐ **BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- ☐ **SKEWED/SLANTED IMAGES**
- ☐ **COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- ☐ **GRAY SCALE DOCUMENTS**
- ☐ **LINES OR MARKS ON ORIGINAL DOCUMENT**
- ☐ **REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- ☐ **OTHER:** _____

IMAGES ARE BEST AVAILABLE COPY.

As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.